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ABSTRACT

The Maryland School Performance Assessment Program (MSPAP) offers a relatively new way to measure achievement in schools. Six content areas are tested in grades 3 and 5. The use of the MSPAP to differentiate among schools in terms of success was studied using data for the 775 Maryland elementary schools that were active in 1995. Test results for the academic years 1992 through 1995 were included. A series of regression models were developed to predict the school means for each content area. Using weighted regression, weighting by the inverse variance of error of the mean, the content area score was predicted for each school at each of the two grade levels. Regressions were repeated adding the 1999 (x-1) mean MSPAP content area score at that grade level to have a measure that could tap gains in performance along with a previous measure that evaluates absolute performance in relation to the demographic variables. Thirty-six regressions (6 content areas by 2 grades by 3 years) were developed, and the studentized residuals from each equation were retained for further analyses. Composite variables were created as sums of residuals across grades and content areas. Results, which suggest moderate stability between the third and fifth grade residuals for each content area, indicate that is seems appropriate to aggregate MSPAP residuals across content areas to assess successfulness at the school level. (SLD)

Differentiation of Schools by Successfulness on a Statewide Test

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Differentiation of more and less successful schools has been attempted in the past but with mixed results. Rowan, Bossert, and Dwyer (1983) discussed four basic ways to approach this problem. These are: (1) absolute instructional outcome measures such as proportion below grade level, (2) evaluation of trends in grade levels across years, (3) evaluation of trends in cohorts across years such as increases relative to national norms, and (4) residuals from predictions using demographic composition. However, Mandeville and Anderson (1987) characterize approaches in which achievement is regressed onto both socioeconomic status (a component of demographic composition) and prior achievement (Dyer, Linn, and Patton, 1969) as having the most empirical support.

Controlling for prior-year achievement of the same students and socioeconomic status indicators, Mandeville and Anderson (1987) found the overall predictability (squared multiple correlations) of mathematics to be in the range of .34 to .46 and of reading to be in the range of .48 to .76 across grades one to four using school-level data for over 500 South Carolina schools. They then used these equations to find the residuals of the schools and standardized them by their estimated standard errors. The correlations between mathematics and reading residuals ranged from .60 to .70 across the four grades. However, the median cross-grade correlations were only .06 for mathematics and .13 for reading.

Mandeville (1988) further analyzed these data along with the following year's data on the same schools. He evaluated the consistency of the standardized residuals. The correlation between the two years (different students) ranged from .34 to .60 in mathematics and from .36 to .65 in reading across the four grades; a composite sum of the standardized residuals correlated .46 for mathematics and .41 for reading and was judged not to improve stability. The eight correlations between reading and math that held year in common (same students) ranged from .59 to .74. There were six correlations between pairs of the four grades each year, yielding 12 cross-grade correlations for each subject matter area. These cross-grade correlations ranged from .00 to .19 in mathematics and from -.02 to .18 in reading. In reviewing these two sets of data, Mandeville (1988) suggested that teacher cohorts instead of schools should be the focus of studies of successfulness.

The need for student-based data to be included in a regression-based procedure for differentiation of schools on successfulness was considered by Mandeville (1988), who concluded that his basic findings would change little. However, Webster, Mendro, Bembry, and Orsak (1995) described a study that compared ranking procedures using student-based data with school-level data only and found different rankings. Webster, Mendro, Bembry, and Orsak (1995) also calculated ranks according to several different algorithms using student-level data and found them to be almost interchangeable.

The Maryland School Performance Assessment Program (MSPAP) affords a relatively new way to measure achievement in schools. Six content areas are tested in grades 3 and 5 by the MSPAP: reading, writing,

language arts, mathematics, science, and social studies. Testing typically takes place over the span of a week and involves group and individual activities used to measure applications of knowledge and skills, but the way the achievement domain is organized differs across content areas. Different students complete different activities that make up the scoring events by which the school is assessed. Individual scores on the six content area scales are estimated using item response theory models. The content area scales are equated across years so that comparisons over time are meaningful. For a more detailed overview, see Yen and Ferrara (1997). How use of a generalized, process oriented achievement measure such as the MSPAP for differentiating school successfulness compares with the more discrete capacity assessment common in schools has not been researched, nor has the stability of a composite index of successfulness across content areas for the newer MSPAP testing format.

Method

Schools and Variables

Data for all 775 Maryland public elementary schools that were active in 1995 were forwarded to us by the Maryland State Department of Education. The four academic years 1992 through 1995 were included. For each year, variables were included that represented:

- school district
- urbanicity
- enrollment
- attendance
- mobility
- absenteeism
- percent Title I
- percent ESOL
- percent special education
- percent free or reduced price meals
- gender distribution
- ethnic distribution
- number of students in grades 3 and 5
- numbers and percents in grades 3 and 5 taking each MSPAP content area test
- percent satisfactory in grades 3 and 5 on each MSPAP content area test
- scale score mean and st. dev. for grades 3 and 5 on each MSPAP content area test

Analyses for Reading

The analyses for the Reading content area are used here to describe the processes we used to develop a selection criterion that were applied to all content areas. We developed a series of regression models to predict Reading school means. Using weighted regression, weighting by the inverse variance of error of the mean, we predicted 199X mean MSPAP reading score at each school at each grade level (third and fifth) using as predictors:

- elementary enrollment
- elementary attendance rate
- percent entrants
- percent withdrawls
- percent absent less than five days
- percent absent more than twenty days
- percent special education
- percent free or reduced price meals
- percent Indian (American or Alaskan Native)
- percent Asian or Pacific Islander
- percent African American
- percent Hispanic
- percent accounted for on the 199X MSPAP reading assessment

We then repeated the regressions adding 199(X-1) mean MSPAP reading score at that grade level. This was done in order to have a measure that could tap gains in reading performance along with the previous measure that evaluates absolute performance in relation to the demographic variables.

Results for Reading

Four regression models for each of three years were developed (third & fifth with & without prior mean reading score), 1995, 1994, 1993. The squared multiple R values for each of the twelve regressions were:

1995 Grade Three, Without Prior Reading Score: .73
1995 Grade Three, With Prior Reading Score: .80
1995 Grade Five, Without Prior Reading Score: .73
1995 Grade Five, With Prior Reading Score: .79

1994 Grade Three, Without Prior Reading Score: .76
1994 Grade Three, With Prior Reading Score: .82
1994 Grade Five, Without Prior Reading Score: .74
1994 Grade Five, With Prior Reading Score: .80

1993 Grade Three, Without Prior Reading Score: .78
1993 Grade Three, With Prior Reading Score: .84
1993 Grade Five, Without Prior Reading Score: .71
1993 Grade Five, With Prior Reading Score: .79

The values for grade three with prior reading range from .80 to .84 and are most directly comparable to Mandeville's (1988) squared multiple correlations of .64 to .65 for grade three with percent free or reduced lunch and prior year reading score as predictors. The greater predictability we found may be due to the increased number of predictors we used and/or to our use of weighted regression. On the other hand, Mandeville's (1988) use of prior test score from the previous year on the same students should lead to a higher correlation since our data on prior year were for an independent group of students.

Results

We applied analyses similar to those done on reading to the other five MSPAP content area scores. Besides these analyses, we also looked at regressions using the prior year mean as an additional predictor (as we did with reading) as well as, for fifth grade, using the two-year-ago mean for third grade (since there should be substantial overlap in students). Contrary to the recommendation of Mandeville and Anderson (1987) to use prior year achievement as a control variable, neither of these indices showed much stability over years. These analyses are available upon request. Moreover, there is some intuitive appeal to the notion that direction and magnitude of change over one year or two years (i.e., a rate) is less stable than simple performance level. We therefore abandoned further modeling using prior achievement as a predictor.

This resulted in 36 regressions (6 content areas by 2 grades by 3 years). The studentized residuals from each equation were retained for further analyses. Composite variables were created as sums of residuals across grades and content areas. Numbers of school ranged from 605 to 711 across the regressions.

Tables 1-6 show the intercorrelations among the residuals for each content area separately. The first four characters in each variable name identify the content area, the next (fifth) character identifies the grade level, and the next two (sixth and seventh) identify the year.

Stability of residuals over grades is a methodological precondition to interpreting them as indices of higher or lower successfulness for schools. If they are specific to grades within schools but not stable across grades, then teacher cohorts would dominate school comparisons as Mandeville (1988) has found. Accordingly, Tables 1-6 were evaluated for grade stability.

For Language, the correlations between grades 3 and 5 were:
1993: .36 1994: .21 1995: .42

For Reading, the correlations between grades 3 and 5 were:
1993: .43 1994: .39 1995: .33

For Writing, the correlations between grades 3 and 5 were:
1993: .37 1994: .46 1995: .44

For Social Studies, the correlations between grades 3 and 5 were:
1993: .50 1994: .40 1995: .37

For Science, the correlations between grades 3 and 5 were:
1993: .45 1994: .48 1995: .44

For Math, the correlations between grades 3 and 5 were:
1993: .38 1994: .35 1995: .55

These results suggest moderate stability between the third and fifth grade residuals for each content area. They are markedly larger than the cross-grade correlations ranging from -.02 to .18 in reading and .00 to .19 in mathematics found by Mandeville (1988). It seems appropriate to aggregate MSPAP residuals across content areas to assess successfulness at the school level.

The content area residuals were then averaged for each school to form a content area composite. Table 7 shows the intercorrelations among these 6 composites for the 3 years (18 variables). The correlations among these composites are substantial and in all cases statistically greater than zero.

These composites were then averaged across content areas for each school separately for Verbal (Language, Reading, Writing, Social Studies) and Quantitative (Science, Math) subject matter areas. An average of these two scores was also created (called SEL). Table 8 shows the intercorrelations among these composites. For Verbal, the adjacent-year correlations were .62 and .67, compared with .41 for the stability of the cross-grade reading composite found by Mandeville (1988). For Quantitative, the adjacent-year correlations were .55 and .59, which compare with .46 for Mandeville's cross-grade mathematics composite.

The correlations between Verbal and Quantitative areas were:

1993: .85 1994: .86 1995: .88

These correlations suggest that it is reasonable to combine the verbal and quantitative composites and form a composite for each school by averaging across the six content areas across the two grade levels. The SEL index is that composite.

Intercorrelations among the SEL index across the three years ranged from .57 to .68. The adjacent-year correlations were .64 and .68. This suggests that the index is relatively stable, tending to rank schools similarly on a year-to-year basis.

Conclusions

The residuals appear reasonably stable across years. Not surprisingly, there do seem to be student cohort effects, such that the correlations across content areas for the same year tend to be greater than for different years.

The content areas do not seem to separate into groups according to patterns of intercorrelations, which led us to combine all six into a composite index (called SEL). The stability of the composite is probably due to one or both of two factors: (1) characteristics of school populations unmeasured (or not adequately measured) by the set of predictor variables, and (2) consistency of school effects. Examples of the former might be community-based programs, land uses, access to libraries, degree of crime, or transportation patterns. Examples of the latter might be educational backgrounds of the teachers, style of the principal, expenditure of resources, familiarity with MSPAP, or general school attitudes.

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Table 1. Intercorrelations of School Residuals on MSPAP Language Content Scores

Variable	Cases	Mean	Std Dev
LANG393	665	.2137	1.3049
LANG593	608	.0416	1.2320
LANG394	676	.1060	1.1942
LANG594	594	.0073	1.5952
LANG395	697	.0578	1.3572
LANG595	605	.0426	1.2901

- - Correlation Coefficients - -

	LANG393	LANG593	LANG394	LANG594	LANG395	LANG595
LANG393	1.0000	.3635**	.4283**	.3555**	.4323**	.3839**
LANG593	.3635**	1.0000	.2531**	.4465**	.2700**	.2965**
LANG394	.4283**	.2531**	1.0000	.2137**	.4285**	.2066**
LANG594	.3555**	.4465**	.2137**	1.0000	.1775**	.4807**
LANG395	.4323**	.2700**	.4285**	.1775**	1.0000	.4194**
LANG595	.3839**	.2965**	.2066**	.4807**	.4194**	1.0000

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed
Fourth character in variable name is grade; next two are year.

Table 2. Intercorrelations of School Residuals on MSPAP Reading Content Scores

Variable	Cases	Mean	Std Dev
READ393	688	-.1434	1.4306
READ593	645	-.1678	1.4950
READ394	660	-.1343	1.2396
READ594	651	-.1040	1.6332
READ395	683	-.0752	1.2033
READ595	651	-.1259	1.4962

- - Correlation Coefficients - -

	READ393	READ593	READ394	READ594	READ395	READ595
READ393	1.0000	.4344**	.4456**	.2413**	.3156**	.2814**
READ593	.4344**	1.0000	.2427**	.2916**	.1829**	.3203**
READ394	.4456**	.2427**	1.0000	.3923**	.4218**	.1277**
READ594	.2413**	.2916**	.3923**	1.0000	.1291**	.3283**
READ395	.3156**	.1829**	.4218**	.1291**	1.0000	.3347**
READ595	.2814**	.3203**	.1277**	.3283**	.3347**	1.0000

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed
Fourth character in variable name is grade; next two are year.

Table 3. Intercorrelations of School Residuals on MSPAP Writing Content Scores

Variable	Cases	Mean	Std Dev
WRIT393	678	.1188	1.1089
WRIT593	626	.0773	1.3126
WRIT394	695	.1082	1.1639
WRIT594	671	.0675	1.2043
WRIT395	689	.0643	1.2714
WRIT595	626	.1465	1.2635

- - Correlation Coefficients - -

	WRIT393	WRIT593	WRIT394	WRIT594	WRIT395	WRIT595
WRIT393	1.0000	.3868**	.4768**	.4004**	.3687**	.3334**
WRIT593	.3868**	1.0000	.2631**	.3554**	.2797**	.2175**
WRIT394	.4768**	.2631**	1.0000	.4618**	.3632**	.2964**
WRIT594	.4004**	.3554**	.4618**	1.0000	.3465**	.4881**
WRIT395	.3687**	.2797**	.3632**	.3465**	1.0000	.4380**
WRIT595	.3334**	.2175**	.2964**	.4881**	.4380**	1.0000

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed
Fourth character in variable name is grade; next two are year.

Table 4. Intercorrelations of School Residuals on MSPAP Social Studies Content Scores

Variable	Cases	Mean	Std Dev
SOCS393	711	-.1202	1.2855
SOCS593	641	-.0906	1.1859
SOCS394	707	-.2122	1.3195
SOCS594	663	-.1607	1.3888
SOCS395	710	-.1052	1.8408
SOCS595	637	-.1906	2.0603

- - Correlation Coefficients - -

	SOCS393	SOCS593	SOCS394	SOCS594	SOCS395	SOCS595
SOCS393	1.0000	.4958**	.4991**	.3012**	.4068**	.3002**
SOCS593	.4958**	1.0000	.3575**	.3401**	.2633**	.2190**
SOCS394	.4991**	.3575**	1.0000	.3951**	.3587**	.2447**
SOCS594	.3012**	.3401**	.3951**	1.0000	.2178**	.4079**
SOCS395	.4068**	.2633**	.3587**	.2178**	1.0000	.3664**
SOCS595	.3002**	.2190**	.2447**	.4079**	.3664**	1.0000

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed
Fourth character in variable name is grade; next two are year.

Table 5. Intercorrelations of School Residuals on MSPAP Science Content Scores

Variable	Cases	Mean	Std Dev
SCIN393	700	-.1796	1.7239
SCIN593	648	-.0999	1.3121
SCIN394	698	-.1316	1.2232
SCIN594	655	-.0592	1.3880
SCIN395	700	-.1254	1.6803
SCIN595	626	-.0869	1.5213

- - Correlation Coefficients - -

	SCIN393	SCIN593	SCIN394	SCIN594	SCIN395	SCIN595
SCIN393	1.0000	.4514**	.4130**	.2286**	.2142**	.3565**
SCIN593	.4514**	1.0000	.3176**	.4271**	.2242**	.2612**
SCIN394	.4130**	.3176**	1.0000	.4789**	.3860**	.3651**
SCIN594	.2286**	.4271**	.4789**	1.0000	.2989**	.4641**
SCIN395	.2142**	.2242**	.3860**	.2989**	1.0000	.4368**
SCIN595	.3565**	.2612**	.3651**	.4641**	.4368**	1.0000

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed
Fourth character in variable name is grade; next two are year.

Table 6. Intercorrelations of School Residuals on MSPAP Math Content Scores

Variable	Cases	Mean	Std Dev
MATH393	683	-.3220	2.6661
MATH593	678	-.0483	1.1200
MATH394	679	-.1877	1.7891
MATH594	668	-.1144	1.4897
MATH395	677	-.1697	1.4019
MATH595	630	-.0428	1.3094

- - Correlation Coefficients - -

	MATH393	MATH593	MATH394	MATH594	MATH395	MATH595
MATH393	1.0000	.3832**	.3132**	.2131**	.2580**	.1842**
MATH593	.3832**	1.0000	.3203**	.4313**	.3179**	.3924**
MATH394	.3132**	.3203**	1.0000	.3463**	.3959**	.2712**
MATH594	.2131**	.4313**	.3463**	1.0000	.2675**	.4535**
MATH395	.2580**	.3179**	.3959**	.2675**	1.0000	.5536**
MATH595	.1842**	.3924**	.2712**	.4535**	.5536**	1.0000

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed
Fourth character in variable name is grade; next two are year.

Table 7. Intercorrelations of Sums of School Residuals Across Third and Fifth Grades on MSPAP Content Scores

Variable	Cases	Mean	Std Dev
LANG93	605	.1152	.9877
LANG94	591	.0493	1.0076
LANG95	604	.0497	.9551
READ93	641	-.1549	1.0724
READ94	632	-.1242	.9948
READ95	644	-.1034	1.0457
WRIT93	624	.0898	.9704
WRIT94	666	.0832	1.0008
WRIT95	624	.1164	.9674
SOCS93	640	-.1278	.9646
SOCS94	660	-.1712	1.0504
SOCS95	635	-.1648	1.3232
SCIN93	645	-.1569	1.0978
SCIN94	651	-.0831	1.0831
SCIN95	624	-.0857	1.1208
MATH93	657	-.1987	1.6211
MATH94	652	-.1163	1.2207
MATH95	624	-.1043	1.0712

Last two characters in variable name are year.

Correlations are on the next page.

	LANG93	LANG94	LANG95	READ93	READ94	READ95
LANG93	1.0000	.5962**	.5136**	.6180**	.4606**	.3513**
LANG94	.5962**	1.0000	.5661**	.4904**	.5847**	.4829**
LANG95	.5136**	.5661**	1.0000	.3813**	.4607**	.7624**
READ93	.6180**	.4904**	.3813**	1.0000	.4964**	.4037**
READ94	.4606**	.5847**	.4607**	.4964**	1.0000	.5041**
READ95	.3513**	.4829**	.7624**	.4037**	.5041**	1.0000
WRIT93	.8210**	.5685**	.5033**	.6866**	.4594**	.3699**
WRIT94	.4818**	.6715**	.4499**	.3777**	.7299**	.4485**
WRIT95	.4929**	.5782**	.8342**	.4168**	.5032**	.7501**
SOCS93	.6844**	.5234**	.4649**	.8806**	.5403**	.4124**
SOCS94	.4329**	.6396**	.4921**	.4554**	.8450**	.5140**
SOCS95	.3397**	.4591**	.6655**	.4128**	.4130**	.8121**
SCIN93	.6260**	.5047**	.4201**	.8175**	.5322**	.3788**
SCIN94	.4169**	.5956**	.4595**	.4288**	.8150**	.5125**
SCIN95	.3427**	.5024**	.7208**	.4385**	.4723**	.8585**
MATH93	.5666**	.4518**	.2736**	.6096**	.5011**	.2600**
MATH94	.3531**	.5862**	.3936**	.3698**	.7677**	.4386**
MATH95	.3334**	.4459**	.6575**	.4454**	.4722**	.7952**

	WRIT93	WRIT94	WRIT95	SOCS93	SOCS94	SOCS95
LANG93	.8210**	.4818**	.4929**	.6844**	.4329**	.3397**
LANG94	.5685**	.6715**	.5782**	.5234**	.6396**	.4591**
LANG95	.5033**	.4499**	.8342**	.4649**	.4921**	.6655**
READ93	.6866**	.3777**	.4168**	.8806**	.4554**	.4128**
READ94	.4594**	.7299**	.5032**	.5403**	.8450**	.4130**
READ95	.3699**	.4485**	.7501**	.4124**	.5140**	.8121**
WRIT93	1.0000	.5298**	.4415**	.7276**	.4192**	.3474**
WRIT94	.5298**	1.0000	.5360**	.4853**	.7266**	.4178**
WRIT95	.4415**	.5360**	1.0000	.4564**	.4962**	.6772**
SOCS93	.7276**	.4853**	.4564**	1.0000	.5074**	.4070**
SOCS94	.4192**	.7266**	.4962**	.5074**	1.0000	.5135**
SOCS95	.3474**	.4178**	.6772**	.4070**	.5135**	1.0000
SCIN93	.6962**	.4478**	.4494**	.8642**	.4901**	.4180**
SCIN94	.4007**	.7007**	.5251**	.5095**	.8713**	.4821**
SCIN95	.3805**	.4366**	.7637**	.4659**	.5419**	.9118**
MATH93	.5908**	.4138**	.2944**	.6073**	.4997**	.2962**
MATH94	.3694**	.5759**	.3793**	.4400**	.7318**	.4486**
MATH95	.3417**	.4315**	.6882**	.4574**	.5769**	.9038**

	SCIN93	SCIN94	SCIN95	MATH93	MATH94	MATH95
LANG93	.6260**	.4169**	.3427**	.5666**	.3531**	.3334**
LANG94	.5047**	.5956**	.5024**	.4518**	.5862**	.4459**
LANG95	.4201**	.4595**	.7208**	.2736**	.3936**	.6575**
READ93	.8175**	.4288**	.4385**	.6096**	.3698**	.4454**
READ94	.5322**	.8150**	.4723**	.5011**	.7677**	.4722**
READ95	.3788**	.5125**	.8585**	.2600**	.4386**	.7952**
WRIT93	.6962**	.4007**	.3805**	.5908**	.3694**	.3417**
WRIT94	.4478**	.7007**	.4366**	.4138**	.5759**	.4315**
WRIT95	.4494**	.5251**	.7637**	.2944**	.3793**	.6882**
SOCS93	.8642**	.5095**	.4659**	.6073**	.4400**	.4574**
SOCS94	.4901**	.8713**	.5419**	.4997**	.7318**	.5769**
SOCS95	.4180**	.4821**	.9118**	.2962**	.4486**	.9038**
SCIN93	1.0000	.5339**	.4690**	.7397**	.4582**	.4158**
SCIN94	.5339**	1.0000	.5492**	.5088**	.8050**	.5772**
SCIN95	.4690**	.5492**	1.0000	.3146**	.4974**	.8862**
MATH93	.7397**	.5088**	.3146**	1.0000	.4630**	.3483**
MATH94	.4582**	.8050**	.4974**	.4630**	1.0000	.5301**
MATH95	.4158**	.5772**	.8862**	.3483**	.5301**	1.0000

Table 8. Intercorrelations of Sums of School Residuals Across
Verbal MSPAP Content Scores (Language + Reading + Writing + Social Studies),
Quantitative MSPAP Content Scores (Science + Math), and
Combined MSPAP Content Scores (Verbal + Quantitative)

Variable	Cases	Mean	Std Dev
VERB93	605	-.0159	.8064
VERB94	591	-.0352	.7544
VERB95	600	-.0035	.8683
QUAN93	644	-.1694	1.2163
QUAN94	646	-.0968	1.0750
QUAN95	622	-.0913	1.0542
SEL93	605	-.0497	.8000
SEL94	591	-.0685	.7630
SEL95	598	-.0174	.8404

- - Correlation Coefficients - -

	VERB93	VERB94	VERB95	QUAN93	QUAN94	QUAN95	
VERB93	1.0000	.6652**	.5637**	.8526**	.5071**	.4773**	
VERB94	.6652**	1.0000	.6231**	.6025**	.8628**	.5629**	
VERB95	.5637**	.6231**	1.0000	.4177**	.5409**	.8771**	
QUAN93	.8526**	.6025**	.4177**	1.0000	.5504**	.4079**	
QUAN94	.5071**	.8628**	.5409**	.5504**	1.0000	.5885**	
QUAN95	.4773**	.5629**	.8771**	.4079**	.5885**	1.0000	SEL93
.9818**	.6760**	.5598**	.9363**	.5484**	.4958**	SEL94	
.6576**	.9820**	.6205**	.6365**	.9428**	.6019**	SEL95	
.5664**	.6264**	.9847**	.4475**	.5795**	.9473**		

	SEL93	SEL94	SEL95
VERB93	.9818**	.6576**	.5664**
VERB94	.6760**	.9820**	.6264**
VERB95	.5598**	.6205**	.9847**
QUAN93	.9363**	.6365**	.4475**
QUAN94	.5484**	.9428**	.5795**
QUAN95	.4958**	.6019**	.9473**
SEL93	1.0000	.6827**	.5735**
SEL94	.6827**	1.0000	.6385**
SEL95	.5735**	.6385**	1.0000

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed

Last two characters in variable name are year.

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